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18 July 195[illegible]

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MEMORANDUM FOR: THE RECORD

SUBJECT : Project Visit to [redacted] (U) 25X1

1. TIME AND PLACE OF MEETING: The meeting was held 15 July at [redacted] 25X1

2. ATTENDANCE: [redacted] 25X1

3. PURPOSE OF MEETING: To discuss the progress of the Wall Measurement Program (Ad Hoc #25) [redacted] 25X1

4. DISCUSSION:

[redacted] is now not as optimistic as they have previously been that success will be obtained in this project. It appears that there is a long way to go before an operational piece of equipment will be available. The measurement of concrete can be accomplished with the present equipment, providing the thickness of the wall is known. With knowledge of the wall thickness, the reflected signal blip can be ascertained. However, if one had knowledge beforehand of the wall thickness, the necessity for such equipment would be nil. 25X1

[redacted] is conducting tests using barium lead titanate crystals one inch in diameter. Damping is still the major problem [redacted] faces on this project. [redacted] has tried liquid damping and solid damping and is going to test electronic damping. Liquid damping was tried by [redacted] and, contrary to the available literature, did not perform satisfactory. [redacted] then tried solid damping. One method was to use crystals back to back; another method was the sandwich type, where the bottom and top faces were connected to ground while the common faces received the pulse. Both of these methods were only satisfactory to a degree. [redacted] then discovered that putting the transducer in a bakelite holder appeared to help. A fairly large bakelite holder was made up and [redacted] found that this dampened more than stacked crystals. [redacted] will conduct tests to determine what type of bakelite is best and what the optimum holder size should be. 25X1 25X1 25X1 25X1 25X1 25X1 25X1 25X1 25X1

[redacted] is also looking at 25X1

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[redacted] is also looking at electronic damping. They have under construction a new pulser which will contain resistors to dampen after the initial pulse. [redacted] is using a 8 microsecond pulse at a pulse rate of 60 per second. 25X1 25X1

[redacted] determined that glycerin was a better damping agent than CMC70, a celluose gum. [redacted] found that the shear wave does not travel as fast as the compressive wave and its use just further complicates the damping problem. Thus, the compressive wave will be used. [redacted] stated that impedance mismatch added to the surface wave effect. The impedance = density of material x velocity of sound in the material. To overcome the impedance effect, either a better matching will have to be obtained or a stronger signal used. [redacted] stated that the magnetude of the reflected signal is somewhere in the neighborhood of 5-10 milivolts. 25X1 25X1 25X1 25X1

[redacted] was questioned as to what [redacted] meant by small samples, and it was stated that they considered small samples something in the order of 100-200 sq. ft. [redacted] had stated that the resonance technique was not adequate on small samples. 25X1 25X1

[redacted] was asked if they had considered using pulsed microwaves approach. [redacted] stated that they had not. It was concluded that this was another problem, which was not in the scope of this particular task. 25X1 25X1

[redacted] was asked to check on the GE micrometer wall thickness measurement gauge and to submit a technical report every three months, in addition to their monthly reports. 25X1

[redacted] program for the next month will be to continue work on the damping problem and conduct electronic damping experiments with the new pulser. 25X1

[redacted] 25X1

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